

ATTACHMENT J1

Vance AFB Electric Distribution System

TABLE OF CONTENTS

VANCE AFB ELECTRIC DISTRIBUTION SYSTEM	I
J1 VANCE AFB ELECTRIC DISTRIBUTION SYSTEM.....	1
J1.1 VANCE AFB OVERVIEW	1
J1.2 ELECTRIC DISTRIBUTION SYSTEM DESCRIPTION	1
J1.2.1 <i>Electric Distribution System Fixed Equipment Inventory</i>	1
J1.2.1.1 Description	2
J1.2.1.2 Inventory	3
J1.2.2 <i>Electric Distribution System Non-Fixed Equipment and Specialized Tools</i>	5
J1.2.3 <i>Electric Distribution System Manuals, Drawings, and Records</i>	6
J1.3 SPECIFIC SERVICE REQUIREMENTS.....	6
J1.4 CURRENT SERVICE ARRANGEMENT.....	6
J1.5 SECONDARY METERING	7
J1.5.1 <i>Existing Secondary Meters</i>	7
J1.5.2 <i>Required New Secondary Meters</i>	9
J1.6 MONTHLY SUBMITTALS.....	9
J1.7 ENERGY SAVING PROJECTS	10
J1.8 SERVICE AREA	10
J1.9 OFF-INSTALLATION SITES.....	10
J1.10 SPECIFIC TRANSITION REQUIREMENTS.....	10
J1.11 GOVERNMENT RECOGNIZED SYSTEM DEFICIENCIES.....	11

LIST OF TABLES

Table 1 - Fixed Inventory	3
Table 2 - Spare Parts	5
Table 3 - Specialized Vehicles and Tools.....	6
Table 4 - Manuals, Drawings, and Records	6
Table 5 - Existing Secondary Meters	7
Table 6 - New Secondary Meters.....	9
Table 7 - Service Connections and Disconnections.....	10
Table 8 - System Deficiencies	11

J1 Vance AFB Electric Distribution System

J1.1 Vance AFB Overview

Vance AFB, located three miles south-southwest of Enid in Garfield County, Oklahoma, is an Air Education and Training Command (AETC) installation that conducts joint specialized undergraduate pilot training (JSUPT). The Installation is essentially a single-mission base with the primary organization, the 71st Flying Training Wing (71st FTW), graduating about 250 pilots from its pilot training program each year. T-37, T-38, and T-1 aircraft are assigned to the 71st FTW.

Vance AFB occupies 2,000 acres. Recent land acquisitions include 130 acres on the north side of installation given to the Installation by the City of Enid in 1999 and another 10 acres given by the City of Enid in 2001. Vance AFB has a total population of approximately 3,500, including military personnel, civilian employees and support personnel, students, and dependents. Facility space totals approximately 1.94 million square feet (msf) (Industrial: 1.19 msf; Administrative: 0.20 msf; Military Family Housing (MFH): 0.38 msf; Unaccompanied Housing: 0.16 msf; Transient Quarters: .01 msf). The annual payroll at Vance AFB is approximately \$65 million (combined military, civilian, and retirees), and the Base is vital to the local economy through civilian employment, contracting, and purchases from local businesses.

There are no known factors that would effect any significant changes in total Vance building space and the consequent impact on Vance utility requirements.

Kegelman Auxiliary Airfield is a small training airfield, about 45 miles northwest of Vance AFB and west of Oklahoma Highway 38, that covers 1,076 acres with only nine buildings totaling approximately 8,135 square feet of industrial/administrative space.

J1.2 Electric Distribution System Description

J1.2.1 Electric Distribution System Fixed Equipment Inventory

The Vance AFB electric distribution system consists of all appurtenances physically connected to the distribution system from the point where the distribution system enters the Installation and Government ownership currently starts to the points of demarcation, defined by the Right of Way. The system includes, but is not limited to, transformers, circuits, protective devices, utility poles, duct banks, switches, street lighting fixtures, and other ancillary fixed equipment. The actual inventory of items sold will be in the bill of sale at the time the system is transferred. The following description and inventory is included to provide the prospective new owner with a general understanding of the size and configuration of the distribution system. The Government makes no representation that the inventory is accurate. The Contractor shall base its proposal on site inspections, information in the technical library, other pertinent information, and to a lesser degree the following description and inventory. Under no circumstances shall the Contractor be entitled to any service charge adjustments based on the accuracy of the following description and inventory.

Specifically excluded from the electric distribution system privatization:

- The airfield lighting system.
- Parking lot and area floodlights with controls inside adjacent buildings.

J1.2.1.1 Description

Oklahoma Gas and Electric (OG&E) supplies power to Vance AFB through a single 69-kilovolt (kV) transmission line into a substation located on the north end of the Installation, west of Hairston Gate. The substation is owned solely by OG&E. The main power transformer, steel bus support structure, disconnect switches, and master meter are owned by OG&E. The 69kV transmission line feeds a 69/12.47kV, 7500-kilovolt ampere (KVA) transformer. The 12.47kV distribution is fed underground to an AF-owned electrical switching station adjacent to the OG&E substation. The switching station is an outdoor metal-clad switchgear assembly configured in a main and transfer bus arrangement. It consists of six 15kV vacuum circuit breakers (five feeders and a transfer bus tie). There is also a “normally open” emergency feeder connection (between the OG&E-owned substation and the AF-owned switching station) tied to Circuit No. 3. This RTE 15kV switchgear unit with vacuum fault interrupter is also AF-owned.

The backbone of the electrical distribution system consists of five 12470/7200-volt three-phase feeders. The five feeder circuits exit the switching station underground and are installed in a concrete encased duct bank. Circuits 1, 2, and 5 are primarily underground circuits. (Approximately 1.0 percent of the underground (UG) duct bank is located under roadways.) Circuit 4 is a mixture of overhead and underground sections while Circuit 3 is mostly overhead. The UG cable runs are all copper cable and nearly all the overhead (OH) cable is aluminum conductor, steel reinforced (ACSR).

Circuits 1 and 2 serve the Flight Simulator Training Facility in Building 672. Circuit 3 serves a number of buildings and facilities on the north portion of the cantonment area, part of the flightline area and a large part of the airfield area (underground in this area). Circuit 4 serves the remaining portion of the cantonment area, the southern part of the flightline and airfield areas. A “normally open” sectionalizing switch on the west part of the airfield connects Circuits 3 and 4. This allows the area to be back-fed during certain outage situations. Circuit 5 feeds the family housing area in underground loops. Pad-mounted switches in the housing area allow sectionalizing for maintenance and operational convenience.

Though the basic electrical distribution system was initially constructed during the 1940–1950 time period, normal maintenance and Base expansion have prompted replacements and additions to most of the system components. The overhead primary circuits are installed on single wood pole structures with wood cross arms and pin type insulators. All poly chlorinated biphenyl (PCB)-contaminated components have been replaced.

Kegelman Auxiliary Airfield has very limited facilities with minimal electric service. The Kegelman electric system consists of secondary services and four small distribution transformers. These electrical components are incorporated into the overall inventory for Vance AFB.

(Note that Vance AFB has firm plans to replace and reconfigure all 230 MFH units. Phase I is funded in FY 03 and will include 59 units. This housing renovation, even though designs are not yet complete, will undoubtedly include a substantial reconfiguration of the electric distribution system in the MFH area. The latest information on this project and the methodology for potentially transitioning the electrical distribution system will be included in the technical library.)

J1.2.1.2 Inventory

Table 1 provides a general listing of the major electric distribution system fixed assets for the Vance AFB electric distribution system included in the sale. Drawings used to develop the inventory were the Vance Comprehensive Plan Tab G-4, Sheets 2 and 3 of 7 (1989, updated 2000), Tab G-4, Sheet 4 (2001) and Tab G-4, Sheet 5 (1990). A list of the existing utility meters for the electric system was provided by the Installation and was also used in the development of the inventory components.

TABLE 1
 Fixed Inventory
 Electric Distribution System - Vance AFB

Component	Size	Unit	Quantity	Construction Date
Switchgear				
Substation, Circuit Breakers, Vacuum	13-26 kV	EA	7	1990
Substation, Control Batteries		EA	1	1990
Substation, Lightning Arresters	13-26 kV	EA	5	1990
Substation, Transformers, PT	13-26 kV	EA	45	1990
Gang Op Switches	3 PH	EA	5	1990
Concrete Slab	6"	SF	960	1990
Grading, SubGrade w/ Compaction		SY	130	1990
Grading, Gravel w/ Compaction		SY	130	1990
Crushed Stone Aggregate		Tons	24	1990
Underground Line				
UG Cable 4/0	15 kV	LF	28,440	2003
UG Cable 4/0	15 kV	LF	22,800	1988
UG Cable 4/0	15 kV	LF	16,296	1990
UG Cable 1/0	15 kV	LF	9,480	2003
UG Cable 1/0	15 kV	LF	7,600	1988
UG Cable 1/0	15 kV	LF	5,432	1990
UG Cable 350 MCM	15 kV	LF	41,985	2001
UG Cable 350 MCM Neutral	600V	LF	13,995	2001
Overhead Line				
OH Cable 1-#4/0 ACSR	4/0	LF	590	1990
OH Cable 1-#4/0 ACSR	4/0	LF	1,090	2001
OH Cable 1-#3/0 ACSR	3/0	LF	680	2001
OH Cable 1-#1/0 ACSR	1/0	LF	415	2001
OH Cable 1-#4 ACSR	#4	LF	780	2001
OH Cable 2-#2 ACSR	#2	LF	2,080	2001
OH Cable 3-#2/0 ACSR	2/0	LF	2,340	2001
OH Cable 3-#2 ACSR	#2	LF	465	2001
OH Cable 3-#336 ACSR	#336	LF	6,555	2001
OH Cable 4-#4/0 ACSR	4/0	LF	6,760	2001
OH Cable 4-#2 ACSR	#2	LF	24,540	1990
OH Cable 4-#2 ACSR	#2	LF	20,960	2001
OH Cable 4-#4 ACSR	#4	LF	2,100	1990
OH Cable 4-#4 ACSR	#4	LF	680	2001

Component	Size	Unit	Quantity	Construction Date
OH Cable 1-#2 CU	#2	LF	950	1990
OH Cable 3-#3/0 CU	3/0	LF	1,770	1990
OH Cable 3-#2/0 CU	2/0	LF	2,850	1990
OH Cable 3-#2/0 CU	2/0	LF	1,125	2001
OH Cable 3-#2 CU	#2	LF	375	2001
OH Cable 4-#6 CU	#6	LF	440	1990
Secondary				
Secondary, UG 1/0	15 kV	LF	7,500	1988
Secondary, OH 1/0	15 kV	LF	16,590	1988
Ductbank				
Ductbank - 4" PVC	1x2	LF	8,030	1981
Ductbank - 4" PVC	1x2	LF	75,480	1981
Ductbank - 4" PVC	1x2	LF	73,707	1988
Terminator Cable				
Terminator Cable, UG	15 kV	EA	180	1981
Terminator Cable, UG	15 kV	EA	77	1981
Terminator Cable (Transf)	25 kV	EA	351	1981
Transformers – Pole-Mount				
Transformers, Pole, 1 PH	5 kVA	EA	3	1981
Transformers, Pole, 1 PH	10 kVA	EA	15	1981
Transformers, Pole, 1 PH	15 kVA	EA	24	1981
Transformers, Pole, 1 PH	25 kVA	EA	29	1981
Transformers, Pole, 1 PH	37.5 kVA	EA	54	1981
Transformers, Pole, 1 PH	50 kVA	EA	26	1981
Transformers, Pole, 1 PH	75 kVA	EA	6	1981
Transformers, Pole, 1 PH	100 kVA	EA	3	1981
Transformers, Pole, 1 PH	167 kVA	EA	3	1981
Transformers – Pad-Mount				
Transformers, Pad, 1 PH	15 kVA	EA	4	1981
Transformers, Pad, 1 PH	25 kVA	EA	3	1981
Transformers, Pad, 1 PH	37.5 kVA	EA	3	1981
Transformers, Pad, 1 PH	50 kVA	EA	42	1981
Transformers, Pad, 1 PH	100 kVA	EA	1	1981
Transformers, Pad, 1 PH	167 kVA	EA	9	1981
Transformers, Pad, 3 PH	45 kVA	EA	2	1981
Transformers, Pad, 3 PH	75 kVA	EA	5	1981
Transformers, Pad, 3 PH	112.5 kVA	EA	3	1981
Transformers, Pad, 3 PH	150 kVA	EA	5	1981
Transformers, Pad, 3 PH	225 kVA	EA	8	1981
Transformers, Pad, 3 PH	300 kVA	EA	5	1981
Transformers, Pad, 3 PH	500 kVA	EA	3	1981
Transformers, Pad, 3 PH	750 kVA	EA	11	1981
Street Lights				
Fixtures, HPS	100 watt	EA	151	1981
Fixtures, HPS	150 watt	EA	53	1981
Fixtures, HPS	250 watt	EA	15	1981
Fixtures, HPS	500 watt	EA	2	1981
Fixtures, MV	400 watt	EA	1	1981
Fixtures, LPS	55 watt	EA	3	1981
Poles, Wood	40 ft	EA	100	1981
Poles, Steel	30 ft	EA	48	1981
Poles, Concrete	40 ft	EA	10	1981
Poles, Concrete	30 ft	EA	45	1981
Poles, Alum	30 ft	EA	10	1981
Wire, Copper, OH	600V, #6	LF	24,140	1981
Wire, Copper, UG	600V, #8	LF	19,110	1981

Component	Size	Unit	Quantity	Construction Date
Additional Inventory				
Meters	3 PH	EA	52	1981
Guys, Anchors	-	EA	79	1981
Lightning Arrestors	13-26 kV	EA	179	1981
Load Interrupter Switch	13.8 kV	EA	1	1981
Pole, Wood	40 ft	EA	117	1981
Cross Arms	6' L	EA	117	1981
Conductor	600 volt	LF	94,500	1981
Conductor - UG #1/0	1/0	LF	52,960	1981
Conductor - UG #4/0	4/0	LF	22,520	1981
Manholes	4x6	EA	21	1981
Sectionalizing Switches		EA	14	1981
Disconnect Switches	1 PH	EA	41	1981
Deadends/Joints		EA	30	1981
Notes: UG = underground OH = overhead ACSR = aluminum conductor, steel reinforced CU = copper PVC = polyvinyl chloride SF = square foot EA = each MCM = thousand circular mils MV = medium voltage PH = phase kV = kilovolt kVA = kilovolt ampere ft = feet LF = linear feet SY = square yard HPS = high pressure sodium LPS = low pressure sodium				

J1.2.2 Electric Distribution System Non-Fixed Equipment and Specialized Tools

Tables 2 and 3 would typically list other ancillary equipment (spare parts) and specialized vehicles and tools included in the purchase. However, Vance is a very small installation with a small, contracted O&M operation. The Installation does not maintain significant levels of spares (they are actually prohibited from maintaining such levels), nor is there specialized equipment that could be made available for privatization. Hence, Tables 2 and 3 reflect no items available for privatization.

TABLE 2
 Spare Parts
Electric Distribution System - Vance AFB

Quantity	Item	Make/Model	Description	Remarks
None				

TABLE 3
 Specialized Vehicles and Tools
Electric Distribution System - Vance AFB

Description	Quantity	Location	Maker
None			

J1.2.3 Electric Distribution System Manuals, and Records Drawings,

Table 4 lists the manuals, drawings, and records that will be transferred with the system.

TABLE 4
 Manuals, Drawings, and Records
Electric Distribution System - Vance AFB

Quantity	Item	Description	Remarks
1	Drawing	Comprehensive Plan, Tab G-4, 1989	Sheets 2 & 3 of 7
1	Listing	Electric Meters	Shows Bldg served, some with Bldg SF

J1.3 Specific Service Requirements

The service requirements for the Vance AFB electric distribution system are as defined in the Section C, *Description/Specifications/Work Statement*. The following requirements are specific to the Vance AFB electric distribution system and are in addition to those found in Section C. If there is a conflict between requirements described below and Section C, the requirements listed below take precedence over those found in Section C.

- All new or renewal utility systems will be placed underground in effort to mitigate damage from frequent ice and windstorms, a policy that Vance AFB has been following for several years.

J1.4 Current Service Arrangement

- Provider Name: Oklahoma Gas & Electric (OG&E)
- Total electrical consumption for the last several years (1996-2002) has ranged from a low of 25,160,000-kilowatt hours (KWH) in FY 1997 to a high of 28,406,000 KWH in FY 2000. Average annual consumption over that 7-year period has been 26,880,000 KWH.
- Annual Usage Fluctuations have been relatively insignificant – only a 13 percent increase between the high and low years from FY 96 – FY 02. Annual and monthly fluctuations are driven primarily by the severity of summer temperatures that drive up HVAC electrical consumption. July and August are usually the peak months with total

consumption around 3,200,000 KWH and peak demand around 6,600 KW. At the low end, monthly consumption is approximately 1,900,000 KWH with demand at 4,500 KW.

- There do not appear to be any contentious CCN issues. OG&E's service territory, assigned by the Oklahoma Corporation Commission (OCC) includes the area that surrounds Vance AFB. Unlike some investor owned utilities (IOU) with similar franchise arrangements, OG&E has made no threats about restructuring its master-metered commodity sales agreement with Vance AFB if the installation were to sell its electrical distribution system to another entity.
- **Important!** Vance has a long-standing commitment of a substantial allocation of hydropower from Southwestern Power Administration (SWPA). In fact, Vance has been advised by SWPA that privatization of its electric distribution system would result in the loss of that allocation – a potentially unacceptable economic impact.

J1.5 Secondary Metering

J1.5.1 Existing Secondary Meters

Table 5 provides a listing of the existing (at the time of contract award) secondary meters that will be transferred to the Contractor. The Contractor shall provide meter readings for all secondary meters IAW Paragraph C.3.3 and J1.6 below:

TABLE 5
 Existing Secondary Meters
 Electric Distribution System - Vance AFB

Bldg No.	Facility Function	Square Feet
113	Vehicle Refueling Maint.	4,368
119	AGE Corrosion Control	1,104
128	Field Maintenance	43,644
129	ACFT Maint. Hangar	23,543
130	Shp Non-Destr Insp	6,008
140	Fire station	15,402
141	ACFT Maint Hangar	59,633
155	Base Ops	9,925
170-1	Hangar Maint	25,141
170-2	ACFT Maint. Hangar	*
171	Life Support	6,004
174	T-1 Combs Whse	17,760
179	Flt Tng Upt	22,396
183	Flt Tng Upt	24,831
187	Shop A/C Maint	31,760
192	A/C Corrosion Cntrl	5,953
193	Indust. Wst Trt Bldg	1,681
195	ACFT Maint. Hangar	36,650
243N	Whse Sup & Equip	20,286
243S	Whse Sup & Equip	*
244E	Whse Sup & Equip	30,571
244W	Whse Sup & Equip	*
248	CE Admin	10,675
258	Grndwater Trtmt Facility	4,800

Bldg No.	Facility Function	Square Feet
288	BCE Complex	54,500
293	Vehicle Maint Complex	33,304
314	ADMIN	11,899
316	Gymnasium	15,148
323	Youth Center	7,009
345	Bowling Center	7,800
410	Commissary	34,303
412	Tinker Credit Union	1,431
413	Central Nat'l Bank	1,400
415	Base Exchange	34,853
421	UEQ	25,146
423	UEQ	25,146
455	ADMIN	15,683
500	Wing HQ Admin	45,690
518	ADMIN	6,150
522	BX Service Station	1,296
528	Chapel Annex	7,195
541	Flt Tng Upt	13,231
600	Non-AF Admin	9,319
601	Collocated club	11,755
606	ADMIN	10,099
641W	UOQ	10,945
641E	UOQ	10,945
642W	UOQ	11,120
642E	UOQ	11,120
643W	UOQ	11,120
643E	UOQ	11,120
644W	UOQ	10,945
644E	UOQ	10,945
645W	UOQ	10,945
645E	UOQ	10,945
646	Heat Plant	1,741
690	TLF	26,652
713	VOQ	15,776
795	Air Traffic Control	9,995
810	AF Clinic	32,746
826	Physiological Training	7,824
CASS1	Central Aircraft Strt Sys	N/A
CASS2	Central Aircraft Strt Sys	N/A
Circuit 1	KVAR	N/A
Circuit 1	KWH	N/A
Circuit 2	KWH	N/A
Circuit 3	KWH	N/A
Circuit 4	KWH	N/A
TELO	Southwestern Bell	N/A
	TOTAL – 69 METERS	
*Indicates two metered electric services to the buildings.		

J1.5.2 Required New Secondary Meters

The Contractor shall install and calibrate new secondary meters as listed in **Table 6**. New secondary meters shall be installed IAW Paragraph C.13, Transition Plan. After installation, the Contractor shall maintain and read these meters IAW Paragraphs C.3.3 and J1.6 below.

TABLE 6
 New Secondary Meters
 Electric Distribution System Vance AFB

Meter Location	Meter Description
The Installation has identified no new, specific secondary meter requirements.	

J1.6 Monthly Submittals

The Contractor shall provide the Government monthly submittals for the following:

1. **Invoice** (IAW G.2): The Contractor's monthly invoice shall be presented in a format proposed by the Contractor and accepted by the Contracting Officer. Invoices shall be submitted by the 25th of each month for the previous month. Invoices shall be submitted to:

Name: Rick Boggs
Address: 71 FTS/LS/CE, 320 Young Road, Vance AFB, OK 73705
Phone number: (580) 213-7071

2. **Outage Report:** The Contractor's monthly outage report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Outage reports shall be submitted by the 25th of each month for the previous month. Outage reports shall be submitted to:

Name: Rick Boggs
Address: 71 FTS/LS/CE, 320 Young Road, Vance AFB, OK 73705
Phone number: (580) 213-7071

3. **Meter Reading Report:** The monthly meter reading report shall show the current and previous month readings for all secondary meters. The Contractor's monthly meter reading report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Meter reading reports shall be submitted by the 15th of each month for the previous month. Meter reading reports shall be submitted to:

Name: Rick Boggs
Address: 71 FTS/LS/CE, 320 Young Road, Vance AFB, OK 73705
Phone number: (580) 213-7071

4. **System Efficiency Report:** If required by Paragraph C.3, the Contractor shall submit a system efficiency report in a format proposed by the Contractor and accepted by the

Contracting Officer. System efficiency reports shall be submitted by the 25th of each month for the previous month. System efficiency reports shall be submitted to:

Name: Rick Boggs
Address: 71 FTS/LS/CE, 320 Young Road, Vance AFB, OK 73705
Phone number: (580) 213-7071

J1.7 Energy Saving Projects

IAW Paragraph C.3, Requirement, there are currently no demand side management (DSM) or energy-saving performance contract (ESPC) arrangements that would have any significant effect on the electrical distribution system. The Installation has in place one ESPC that deals with interior (non-distribution) electricity consuming components (primarily light fixtures).

J1.8 Service Area

IAW Paragraph C.4, Service Area, the service area is defined as all areas within the Vance AFB boundaries and the boundaries of Kegelman Auxiliary Airfield.

J1.9 Off-Installation Sites

Kegelman Auxiliary Airfield is a small training airfield, about 45 miles northwest of Vance AFB and west of Oklahoma Highway 38, that covers 1,076 acres with only nine buildings totaling approximately 8,135 square feet of industrial/administrative space.

Kegelman Auxiliary Airfield has very limited facilities with minimal electric service. The Kegelman electric system consists of secondary services and four small distribution transformers. These electrical components are incorporated into the overall inventory for Vance AFB.

Alfalfa Electric Cooperative provides electricity for Kegelman Auxiliary Airfield. The four secondary electric meters at Kegelman are owned and read by the Coop. There should be no change to this arrangement.

J1.10 Specific Transition Requirements

IAW Paragraph C.13, Transition Plan, **Table 7** provides a listing of service connections and disconnections required upon transfer.

TABLE 7
Service Connections and Disconnections
Electric Distribution System - Vance AFB

Location	Description
None	

J1.11 Government Recognized System Deficiencies

There are no planned improvements to the Vance electric distribution system that should be characterized as a system deficiency. Hence, there are no deficiencies listed in Table 8.

TABLE 8
System Deficiencies
Electric Distribution System Vance AFB

Project Location	Project Description
	None